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EXAMINER	
MENON, KRISHNAN S	

ART UNIT	PAPER NUMBER
1777	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,349	KAMLEITER ET AL.	
	Examiner	Art Unit	
	Krishnan S. Menon	1777	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-14,16-26 and 28-33* is/are rejected.

7)☒ Claim(s) *15 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

New Claims 10-33 are pending as amended on 10/13/10.

Claim Objections

Claims 22 and 33 – "polysulfane" appears to be a typo for 'polysulfone'.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 16 and 24 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the various fibers or filaments, does not reasonably provide enablement for graphite powder and activated charcoal. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

Applicant's disclosure does not provide any details of how the mono or multi-filaments of graphite powder or activated charcoal is made, and it is not possible to one of ordinary skill to make this without undue experimentation.

Argument traversing this rejection is not persuasive: the cited paragraph of the cited reference as evidence is copied herein. This does not show support for any

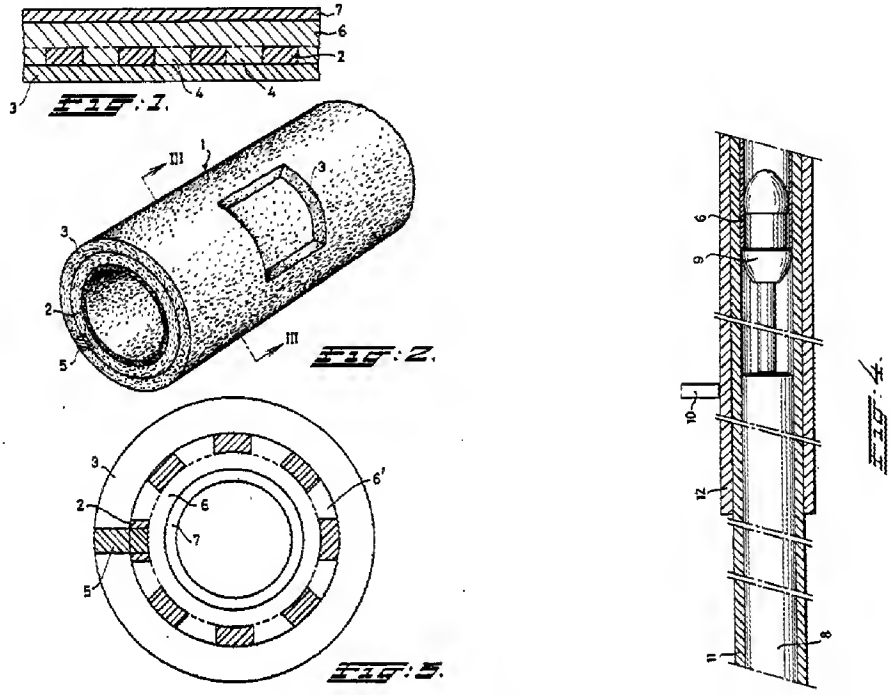
filament made of carbon powder or granular activated carbon. It only teaches that the powders or particulates as carried (or supported) by the fibers/fabric. Claims recite "monofilaments or multifilaments of material selected from ... graphite powder and activated charcoal". In addition, the earliest filing date on this reference is May 13, 2004 and earliest publication date is November 18, 2004. This reference, therefore, would not have been available for one of ordinary skill in the art to determine if the argued "known activated carbon fibers" were actually known at a time at or before the invention by the applicant, which is December 11, 2003 by the foreign priority, and September 17, 2004, by the PCT 371 date.

Referring to FIG. 7, in the filter device 115, a filter member 203 serving as a device element is housed in the casing 201. For example, the filter member 203 is configured in the following manner. Functional powder of ceramics, activated charcoal, titanium oxide, or a like material is carried in a carrier such as synthetic fibers. For example, pure water which flows into the casing from the inlet port 230 disposed in the lid member 205 is passed through the filter member 203 to be converted to ultra pure water. Alternatively, an ion-exchange resin such as silica gel may be carried in a carrier, and pure water or chemical which flows into the casing from the inlet port 230 is passed through the filter member 203 to remove away metal ions contained in the pure water or chemical.

Claim Rejections - 35 USC § 102/103

1. **Claims 10-14, 16-26 and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ten Hove (US 5,034,129) in view of Shintani et al (US 6,454,942, with further evidence from Murase et al (US 2002/0046970 or Mahendran et al (US 2003/0098275)**

Ten Hove: The detailed structure of the composite membrane (Figs 1-3) and the method of making (fig 4) are reproduced herein.



According to fig 4, the process of making the membrane comprises having a woven or knitted tube (11) over Mandrel 8, and then another non-woven, woven or knitted tube (12) slipped over tube 11. The external tube 12 is welded if it is non-woven, but the reference teaches woven or knitted tube as alternative to the non-woven for the external tube 12, and that a weld is not necessary if they are in the form of tubes (column 2, lines 11-15). Membrane of the desired thickness is applied on the inside of tube 11. See column 4, lines 10-29. The membrane material is polysulfone, PVdF, etc. (column 1, lines 32-38), and the fabric material is plastic, polyester (column 1, lines 47-58). The reference also describes the actual forming of the membrane on the fabric is

known in the art, and is by coating a solution and then passing through a precipitation bath – see column 4, lines 34-68

Ten Hove does not provide the details of the knitted tubes 11 and 12.

Shintani teaches a tricot knitted fabric as membrane support. See figure 1 of Shintani reproduced herein. Tricot fabric provides the knotted "fillet-like connecting lines" transversely linked by threads forming transverse connections. The fillet-like lines are shown by the annotated arrows, and the space between the lines marked by the arrows show the4 transverse connections.

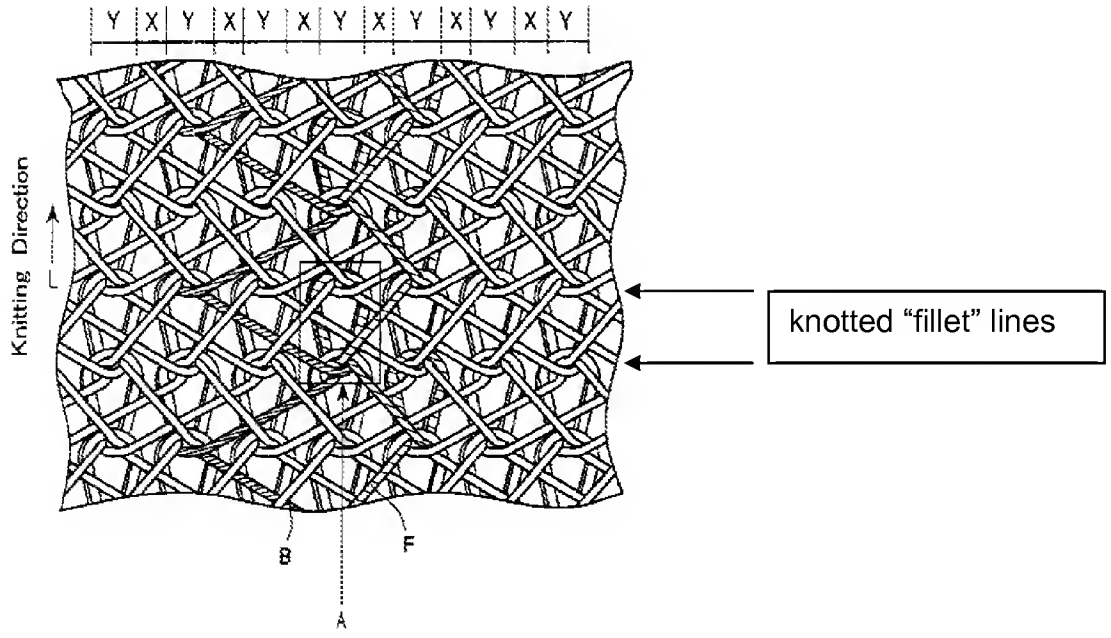
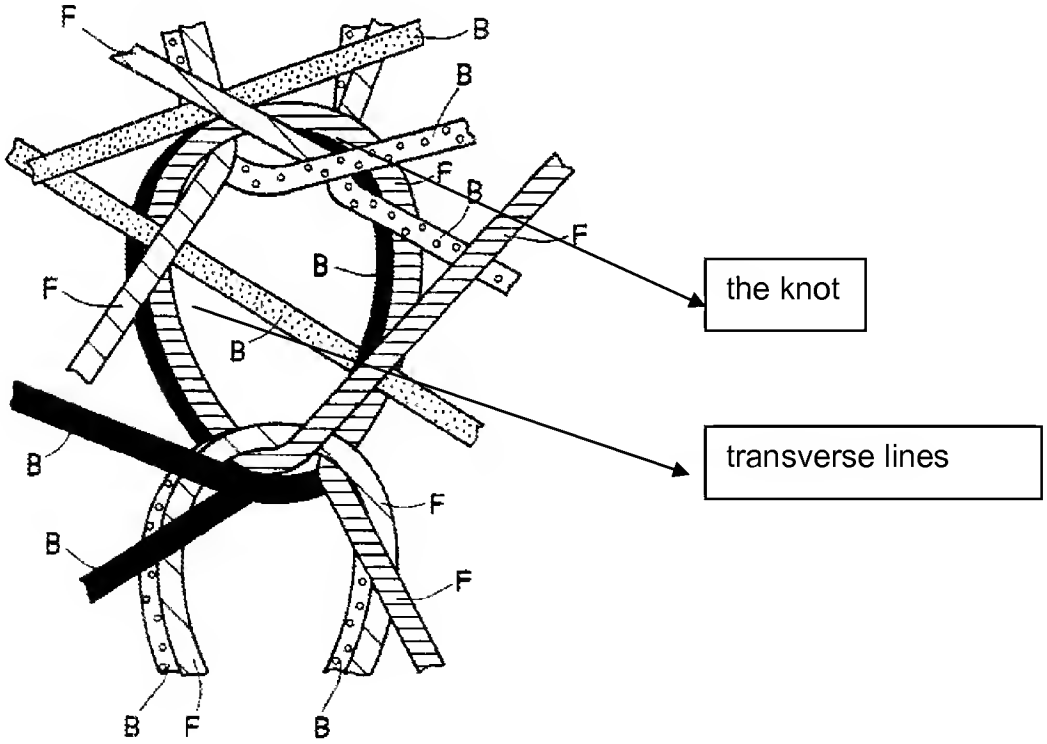


FIG. 1

Tricot knit is also well known and commonly used for making tubes (socks, for example).

`It would be obvious to one of ordinary skill in the art to use the teaching of Shintani in the teaching of Ten Hove to provide the Tricot weave tubes for the tubes 11 and 12, because Ten Hove does not provide any particular structure for the woven or knitted tube, which would motivate one of ordinary skill to look at the prior art literature, and also because of the advantages of tricot weave as a membrane backing material, such as its ability to maintain its structure and rigidity, as well as it providing flow channels at the backing. (See Shintani abstract and "Summary of the Invention").



Regarding the dependent claims, the tricot weave is a knit weave, produced by crocheting device, with hooked needles, the "filet lines" are less permeable than the

space between them ; material of the tricot is polyester or similar polymer; the membrane polymers are as taught.

The angle between adjacent transverse filaments are in the range as claimed (see fig 2): this range is sufficiently broad; even of not, it would be obvious to one of ordinary skill to select an appropriate weave for the tricot for the desired strength and openness.

The references in combination also teach the tubular membrane as claimed.

Regarding the material for the fabric, the references teach plastic materials such as polyester. Ten Hove also teaches that plastic is preferred, which means alternate to plastics would be less preferred, and these would include glass of metal fibers, or at least one of ordinary skill in the art would immediately envisage glass or metal as alternate to plastic for the fibers or threads for the weave. For further evidence, see Murase et al (US 2002/0046970 or Mahendran et al (US 2003/0098275)

2. **Claims 10-14, 16-26 and 28-33 are rejected under 35 U.S.C. 102(b) as anticipated by or under 35 USC 103(a) as being unpatentable over Stockwell (US 5,359,735) with further evidence from Shintani, Murase and Mahendran.**

Stockwell teaches a method of making a coating of a breathable material (a semi-permeable membrane) over a circular knit fabric – a tube of knit fabric. The knit is described as among others, a tricot weave. See column 3, lines 64-69.

Stockwell does not describe the details of the tricot weave. However, such details are taught by Shintani as shown in rejection 1 above. Therefore, it would be

obvious, if not anticipated, to one of ordinary skill in the art that the process and the product of Stockwell would be a tubular membrane as claimed.

The details of the dependent claims are also taught by the Stockwell reference, and/or by Shintani. Regarding the choice of material for the tricot fabric, the references teach polyester or the like. However, choice of metal or glass would be only obvious equivalents unless applicant can show otherwise. Murase teaches using metal or carbon as the fiber yarn in supporting membranes. Mahendran also teaches coating membranes on woven hollow tubes, where the material is polyester, etc, or glass.

Allowable Subject Matter

Claims 15 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: While the prior arts teach plastic or other material for the knitted support, the catalytically active metal for the knitted fabric is novel.

Response to Arguments

Applicant's arguments filed 10/13/10 have been fully considered but they are not persuasive.

Arguments traversing the 112 rejection are addressed in the rejection itself.

Regarding the argument that the tricot weave in the references do not have a continuous longitudinal thread is not persuasive – the tricot weave does have the longitudinal thread as shown in the figures. Applicant's "ball (22)" in figure 1 is the best representation of a continuous longitudinal thread in the specification, which is the same as or equivalent to the knots shown in the figure. Argument that the Shintani reference teaches flexible tricot is also not persuasive. First of all, this argument is not commensurate in scope with the claims. Secondly, Shintani is very specific about the tricot weave being rigid. See the abstract. Tricot weave material is also well known in the membrane industry.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/
Primary Examiner, Art Unit 1797